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CURRENT SUPPORT BRIEF

GAS CONSUMPTION TO ACHIEVE SUBSTANTIAL SAVINGS
FOR USSR THROUGH 1980

OFFICE OF RESEARCH AND REPORTS

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GAS CONSUMPTION TO ACHIEVE SUBSTANTIAL SAVINGS
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The general plan for development of the gas industry during 1961-1980 was recently discussed by the Chief of the USSR Main Administration for the Gas Industry in more detail than is available for the other fuels industries. 1/ Production of gas is expected to increase from about 60 billion cubic meters (bcm) in 1961, to 150 bcm in 1965, 310-325 bcm in 1970, and 680-720 in 1980. The share of gas in the total production of primary energy is to increase from less than 10 percent in 1961 to about 30 percent in 1980. Exploratory drilling is to increase from about 12 million meters during 1961-1965 to approximately 30 million meters in 1976-1980 to provide for an anticipated sixfold expansion of proved reserves. The plan also calls for the construction of 150-170 thousand kilometers (km) of truck transmission line, including 40-45 thousand km of line 40-56 inches in diameter. It is anticipated that the increased investment required to accomplish the planned expansion of the industry will be well justified by the substantial savings to the economy resulting from substitution of natural gas for more expensive forms of energy.

During the two decades substitution of natural gas for other fuels, primarily coal, is to result in a cumulative saving of 63.9 billion (new) rubles--about 4 times gross industrial investment in the USSR in 1961. The expected saving, (see Table 1) is to result primarily from reduced operating expenses accruing from the lower delivered cost of natural gas. The Soviets also expect a multitude of technological advances to contribute to cost reduction in the industry and are also planning to gradually lower the ratio of proved reserves to annual production which will permit further economies. (see Table 4) The differential between the cost of gas and coal apparently is expected to remain substantial even though declines in drilling efficiency and the lack of appreciable gains in transmission efficiency after 1965--probably the result of increased average transmission lengths--will tend to raise the costs of gas. (see Table 2,3)

The 1970 and 1980 production goals are probably based on the assumption that the 1965 target will be met. If, as now seems almost certain, the 1965 plan is not fulfilled, even the ambitious increments planned for 1970 and 1980 will have to be overfulfilled to attain the levels of production envisaged for these years.

Nevertheless, an underfulfillment of production plans does not of itself mean that the expected economies will not be attained. The actual saving to be achieved will be affected by the comparative extent to which plans for reductions in the delivered costs in the coal and gas industries are fulfilled. Furthermore, the Soviet calculations may actually understate the contribution to Soviet national economic development resulting from substitution of natural gas for other fuels because the coal industry has a relatively lower amortization rate compared with the gas industry.

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Table 1

Economies Anticipated from Use of Natural Gas
in the USSR, 1961-1980

<u>Character of Saving</u>	<u>Billion Rubles</u>
Direct a/ Capital Saving	-2.7
Indirect a/ Capital Saving	<u>7.1</u>
Total Capital Saving	4.4
Direct a/ Operating Expense Saving	47.0
Indirect a/ Operating Expense Saving	<u>12.5</u>
Total Operating Expense Saving	<u>59.5</u>
Total Saving	63.9

a. Direct savings are connected with extraction, processing, and delivery of fuel. Indirect savings are those resulting from reduced capital and operating costs of fuel consumers largely because of increased thermal efficiency and less extensive requirements for personnel and equipment.

Table 2

Planned Effectiveness of Drilling for Non-Associated Gas a/
in the USSR, 1961-1980

Period	Planned Exploratory Drilling b/ (Thousand Meters)	Planned Additions to Proved Reserves (bcm)	Planned Effectiveness of Exploratory Drilling (Million Cubic Meters Per Meter Drilled)
1961-1965	11,820	2,600	226
1966-1970	19,100	4,100	220
1971-1975	25,750	5,047	200
1976-1980	29,900	5,490	187
1961-1980	86,570	17,237	204

a. Natural gas is produced in association with or independently of crude oil. During 1961-1980 non-associated gas is expected to account for about 90 percent of total production of natural gas.

b. During 1961-1965 320,000 meters of drilling will be directed toward finding suitable underground storage. In each of the following five year periods 500,000 meters will be drilled in search of storage.

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Table 3

Soviet Gas Transmission Net Efficiency
in 1960, And Plan for 1965-1980Million Cubic Meters per km of
Transmission Net

<u>Year</u>	<u>Efficiency</u>
1960	2.1
1965	3.8
1970	2.8 - 3.3
1980	3.2 - 3.8

Table 4

Planned Relationship Between Proved Reserves and Extraction of
Non-Associated Natural Gas in the USSR, 1961-1980

Billion Cubic Meters a/

<u>Period</u>	<u>Reserves as of</u> <u>1 Jan</u> <u>First Year</u> <u>of Period</u>	<u>Additions</u> <u>to</u> <u>Reserves</u>	<u>Extraction</u>	<u>Annual</u> <u>Extraction</u> <u>Final Year of</u> <u>Period</u>	<u>Ratio of</u> <u>Reserves to</u> <u>Extraction</u>
1961-1965	2,034	2,600	450	132	32:1
1966-1970	4,185	4,100	1,098	280	26:1
1971-1975	7,187	5,047	1,093	452	23:1
1976-1980	10,331	5,490	2,833	646	20:1
1981	12,988	N.A.	N.A.	N.A.	

a. The units are bcm except for the final column. A reserve/extraction ratio may be regarded as a measure of the number of years required for exhaustion of reserves.

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Analyst:



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2. Planovoye khozyaistvo, No. 12, 1961, p. 89. U.

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